



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,568	04/27/2001	Donald Laurence Meixner	06034 USA	1792

23543 7590 05/07/2003

AIR PRODUCTS AND CHEMICALS, INC.  
PATENT DEPARTMENT  
7201 HAMILTON BOULEVARD  
ALLENTOWN, PA 181951501

EXAMINER
----------

KALAFUT, STEPHEN J

ART UNIT	PAPER NUMBER
----------	--------------

1745

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/844,568

Applicant(s)

MEIXNER, DONALD LAURENCE

Examiner

Stephen J. Kalafut

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-13, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 9 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4. 6) ☐ Other:

Art Unit: 1745

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6-8, 10, 12, 13, 15 and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Aizawa *et al.* (EP 1,081,778).

Aizawa *et al.* disclose a fuel cell interconnect comprising a ceramic material of the formula  $(La_{1-x}M_{x})_{y1}MnO_3$ , where  $0 < x < 0.4$  and  $0.9 < y1 < 1.1$  (sections 0152 and 0153), particularly the compound  $La_{0.8}Ca_{0.2}MnO_3$  (sections 0370 and 0371). This would correspond to the present formula where  $x''$  and  $y'$  are both zero, and  $y$  is 1, which coefficients would precisely meet or fall within the scope of present claims 6, 7 and 8. Present claims 3 and 4 would be met, even though they recite Sr and Co, because these claims encompass  $x''$  and  $y'$  both being zero. The recitation by Aizawa of  $y1$  being 0.9 while the coefficient of Mn is understood to be 1 would correspond to the present being greater than 1.0, and thus falling into the range recited in present claims 13 and 16. Since the compounds Aizawa *et al.* are not ionized, the present requirement that the oxygen amount provides charge neutrality would be met.

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Aizawa *et al.*

Art Unit: 1745

(JP 7-320,757).

Aizawa *et al.* disclose a fuel cell interconnect comprising a ceramic material of the formula  $\text{La}_{0.6}\text{Ca}_{0.4}\text{MnO}_3$  (section 0028). This would correspond to the present formula where  $x''$  and  $y'$  are both zero, and  $y$  is 1, which coefficients would precisely meet or fall within the scope of present claims 5 through 8. Present claims 3 and 4 would be met, even though they recite Sr and Co, because these claims encompass  $x''$  and  $y'$  both being zero. Since the compounds Aizawa *et al.* are not ionized, the present requirement that the oxygen amount provides charge neutrality would be met. This reference corresponds to an abstract cited by applicants, in the IDS of 9/23/02. A copy of the Japanese *kokai* and a machine translation are enclosed.

Claims 1-4, 6-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Batawi *et al.* (EP 974,564).

Batawi *et al.* disclose a fuel cell interconnect comprising a ceramic material of the formula  $\text{ABO}_{3-\epsilon}$ , where  $\epsilon$  is positive or negative, and has an absolute value of less than about 0.5 (section 0007), and may preferably be zero (section 0008). The  $\epsilon$  would correspond to the present  $\delta$ . The component A comprises a lanthanide such as La and an alkaline earth metal, while B comprises a transition metal such as Mn and optionally a second transition metal (section 0007). One specific compound is  $\text{La}_{0.2}\text{Ca}_{0.8}\text{MnO}_3$  (section 0017). This would correspond to the present formula where  $x''$  and  $y'$  are both zero, and  $y$  is 1, which coefficients would precisely meet or fall within the scope of present claims 6, 7 and 8. Present claims 3 and 4 would be met, even though they recite Sr and Co, because these claims encompass  $x''$  and  $y'$

Art Unit: 1745

both being zero. Also, even when  $y'$  is greater than zero, claims 4 and 7 would be met, since Co is the preferred transition metal in addition to Mn (section 0007).

Claims 1-4, 6-8 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Batawi *et al.* (US 6,228,522).

This patent has the same disclosure as EP 974,564 above, and would meet thus meet these claims for the same reasons. See, for example, column 2, lines 9-25 and column 3, lines 28-29. US 6,228,522 is available only under subsection (e) of 35 USC §102, being issued after the present filing date.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aizawa *et al.* (EP 1,081,778).

These claims differ from Aizawa *et al.* by reciting particular ranges for the amounts of lanthanum and calcium in their material. However, since Aizawa *et al.* recognize the effects accruing from varying the amounts of these components (section 0153), determining optimal amounts would be within the skill of the ordinary artisan. These claims would thus be obvious over Aizawa *et al.*

Art Unit: 1745

Claims 9 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose interconnect materials in which the three "x" coefficients add up to 1, the two "y" components total between 1.02 and 1.05, and both calcium and strontium are present.

The disclosure is objected to because of the following informalities: Drawing numerals 15, 17, 200, 202, 210, 222, 224 and 230 are not found in the specification. Appropriate correction is required.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Minh *et al.* (US 5,356,730) and Chiao (US 6,228,520) disclose fuel cells with various interconnect materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is (703) 308-0433. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Art Unit: 1745

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

sjk

May 1, 2003



STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP

1700